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10.0 CLEARING

10.1 INTRODUCTION

This section contains criteria and procedures for the establishment of clearing limits and the selection of clearing methods.

Specific criteria and procedures that address field changes, field design practices and specifications, are not included in this section. Sample calculations or design examples are also not included. In addition, design criteria and procedures for embankments, ditch configurations, drainage and erosion control, restoration, and river, stream and wetlands crossings are found in other sections of this Technical Information Supplement. Criteria regarding the siting of various facilities are presented and discussed in other appropriate sections of this Technical Information Supplement.

10.2 CODES AND CRITERIA

10.2.1 Codes

- Alaska Statutes, Title 16 – Fish and Game
- Alaska Statutes, Title 38 – Public Lands
- Code of Federal Regulations, Title 18 – Conservation of Power and Water Resources
- Code of Federal Regulations, Title 23 – Highways
- Code of Federal Regulations, Title 33 – Navigation and Navigable Waters
- Code of Federal Regulations, Title 43 – Public Lands: Interior
- Code of Federal Regulations, Title 49 – Transportation
- Federal Right-of-Way Grant for the Alaska Natural Gas Transportation System Alaska Segment, Serial No. F-24538 (December 1, 1980), as such may be updated and/or amended from time to time.
- Federal Energy Regulatory Commission conditional certificate of public convenience and necessity, issued on December 16, 1977, as such is finalized

10.2.2 Criteria

- Limit clearing to adequate areas required for construction of:
  - Gas pipeline construction zone
  - Material sites
  - Spoil disposal sites
  - Solid waste disposal sites

  - Access roads
  - Storage yards
  - Staging areas
  - Camps
  - Compressor and meter stations
- Limit clearing to areas required for safe and efficient operation of construction equipment.
- Allow machine clearing operations in areas of thaw unstable permafrost soils when the active zone is frozen to a depth sufficient to support the equipment and to reduce surface disturbance, particularly breaking through the vegetative mat.
- Provide buffer strips of undisturbed land between the gas pipeline system and streams, lakes and wetlands unless otherwise approved.
- Provide buffer strips between material sites and state highways, unless otherwise approved.
- Select areas to be cleared by hand methods based upon:
  - Proximity to streams and rivers
  - Proximity to existing structures and facilities
  - Construction season and other timing restrictions
  - Potential for soil erosion
  - Potential for damage to surficial organic mat
  - Proximity to other environmentally sensitive areas
- Clearly indicate areas where machine clearing is prohibited.
- Harvest and dispose of timber resources in accordance with appropriate federal and state regulations and policies.
- Allow the public to salvage harvested timber where safe and practical.
- Dispose of cleared slash under embankments wherever practical (see Section 9).
- Identify and remove danger trees on an individual, site-specific basis.
- Minimize extent of clearing in all areas, but especially in:
  - Designated sensitive wildlife areas
  - Construction zones at river and road crossings
  - Visually sensitive areas
  - Unique vegetation areas including riparian areas
  - Archeological sites

- Ensure access to and prevent damage to adjacent facilities.
- Clearing, grading and surface preparation activities, particularly snow removal, will be analyzed by designers to determine possible impacts on existing TAPS facilities.

10.3 DESIGN PROCEDURES

10.3.1 Clearing Limit Tabulation

The preliminary clearing limits for the gas pipeline construction zone will be shown on the civil general detail drawings. Preliminary clearing limits for all other facilities will be shown on appropriate design drawings. Sufficient detail will be included on the final set of drawings, or sufficient instructions included in the construction specifications, so that the following areas may be readily marked in the field:

- Areas to be cleared
- Areas to be hand cleared
- Areas to remain as buffer zones

10.3.2 Selection of Clearing Method

Hand clearing methods will be required wherever and whenever significant erosion would result from mechanical clearing. Machine clearing may be employed in all areas where hand clearing methods are not specifically required. Hand clearing methods will be used in the following areas:

- Adjacent to fish streams or other water bodies.
- Where machine weight or operations would initiate stream bank failure.
- Within TAPS ROW or where felled trees could damage TAPS facilities.
- Proximate to dwellings or other buildings to allow sufficient operating room for equipment.
- Over thaw unstable soils, except when the active layer is frozen to a depth sufficient to support the equipment and to minimize surface disturbance.

10.3.3 Buffer Zones

Where the gas pipeline construction zone crosses highways, trails, and rivers, the gas pipeline will be clearly marked (see Section 25) and a buffer, or screen of vegetation native to the adjacent area, will be maintained or established over the disturbed areas. Visual impact mitigation will be designed on a site-specific basis. Data for setting encroachment limits (or buffer zones) based on other environmental concerns may be found in the Environmental Master Guide (EMG), as such may be updated or amended from the original.

10.3.4 Slash Disposal

Either burial within embankments, burning, chipping, or removal to spoil disposal areas will be used to dispose of all cleared slash. More detailed criteria on slash disposal within embankments are contained in Section 9.

10.3.5 Timing Restrictions

Clearing operations will be restricted during certain time periods for various environmental reasons. Such restrictions will be noted on the construction drawings. The time interval between clearing operations and embankment construction will be minimized.

10.3.6 Clearing Requirements

Project or construction limits will be established to accommodate all structures and facilities to be built. The project or construction limits will be the clearing limits except where safety of structures or safe equipment operations requires additional space. The latter requirements are site specific and are to be established in the field. Clearing in sensitive visual areas is addressed in Environmental Information Supplement section “Visual Resource Protection”.

10.3.6.1 Gas Pipeline Construction Zone

Specific clearing requirements will be based on the mile-by-mile designs. Typically, topographic conditions and safe operating requirements will define clearing widths.

- Clearing widths for fill sections on the workpad side of the pipe ditch centerline are shown on view “A” of Figure 10-1.
- Clearing widths for cut sections on the workpad side of the pipe ditch centerline are shown on view “B” of Figure 10-1.
- Clearing widths for cut sections in ice-rich soils on the workpad side of the pipe ditch centerline are shown on view “C” of Figure 10-1.
- Clearing widths for fill sections on the spoil storage side of the pipe ditch centerline are shown on view “A” of Figure 10-2.
- Clearing widths for cut sections on the spoil storage side of the pipe ditch centerline are shown on view “B” of Figure 10-2.
- Clearing widths for non-storage sections are shown on view “C” of Figure 10-2.

10.3.6.2 Material Sites

Clearing limits for material sites will generally be to the work limits of the area. Additional clearing may be required for safe and efficient operation of equipment and to accommodate any drainage facilities or erosion and sediment control measures.

10.3.6.3 Spoil Disposal Sites

Areas to be cleared will be restricted to what is required for spoil storage and containment. Additional clearing may be needed to accommodate any drainage facilities or erosion and sediment control measures. Slash will remain where as-cleared and subsequently buried by the spoil within the contained disposal area.

10.3.6.4 Access Roads

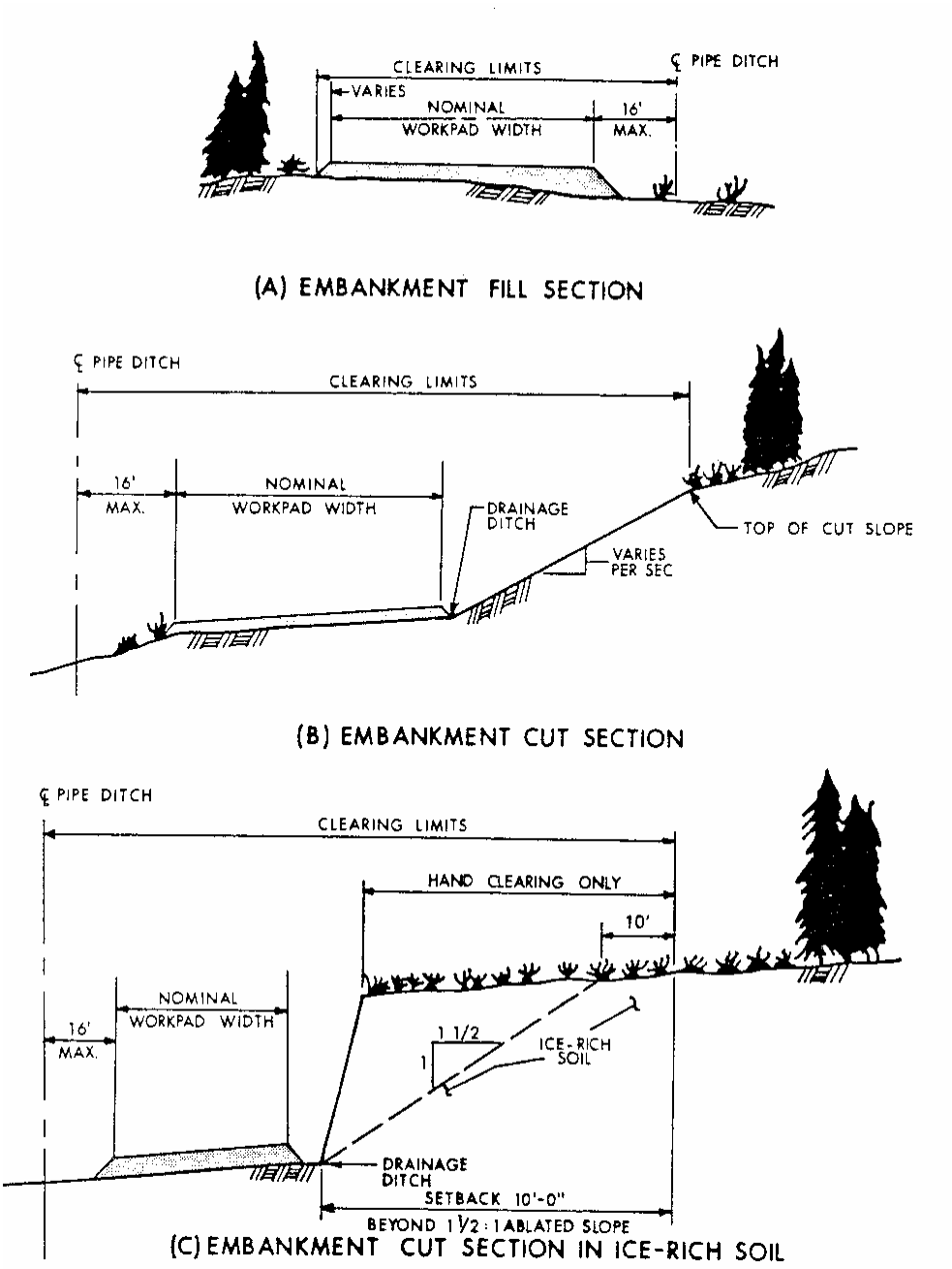
Clearing limits for access roads will generally be limits of cuts or fills. Additional clearing may be required for safe and efficient operation of equipment and to accommodate drainage facilities or erosion and sediment control measures. Typical clearing limits are shown on Figure 10-3.

10.3.6.5 Storage Yards

Clearing limits for storage yards will generally be to the limits of the graded areas. Additional clearing may be required for safe and efficient operation of equipment and to accommodate drainage facilities or erosion and sediment control measures, where those facilities or measures are located outside of the embankment.

10.3.6.6 Staging Areas

Staging areas will be cleared to the construction zone limits. Additional clearing may be required to accommodate drainage facilities or erosion and sediment control measures.



Note: 1) Workpad designed to balance cut and fill

Figure 10-1 Typical Clearing Widths for Workpads

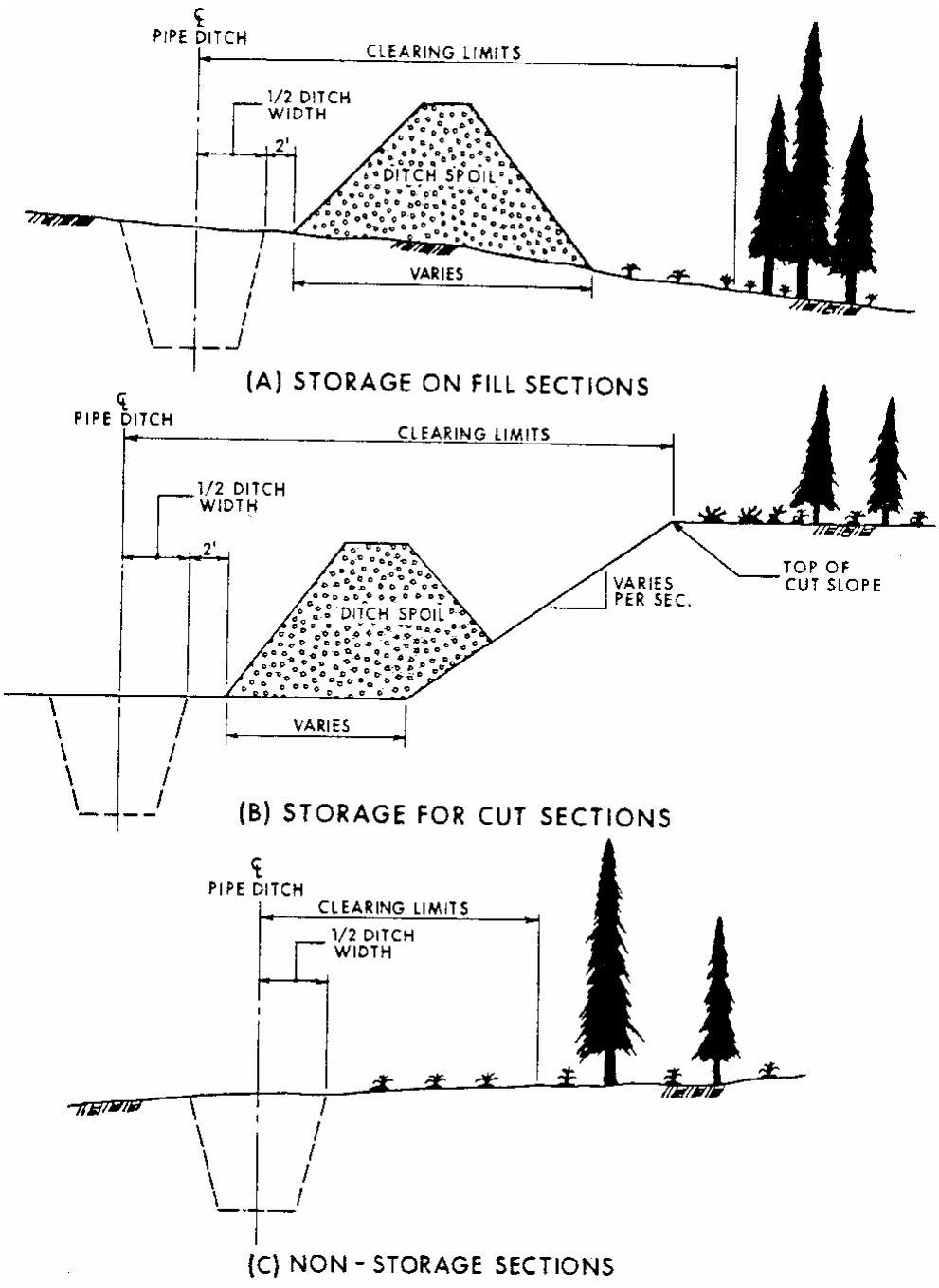


Figure 10-2 Typical Clearing Widths for Pipe Ditch Spoil Storage

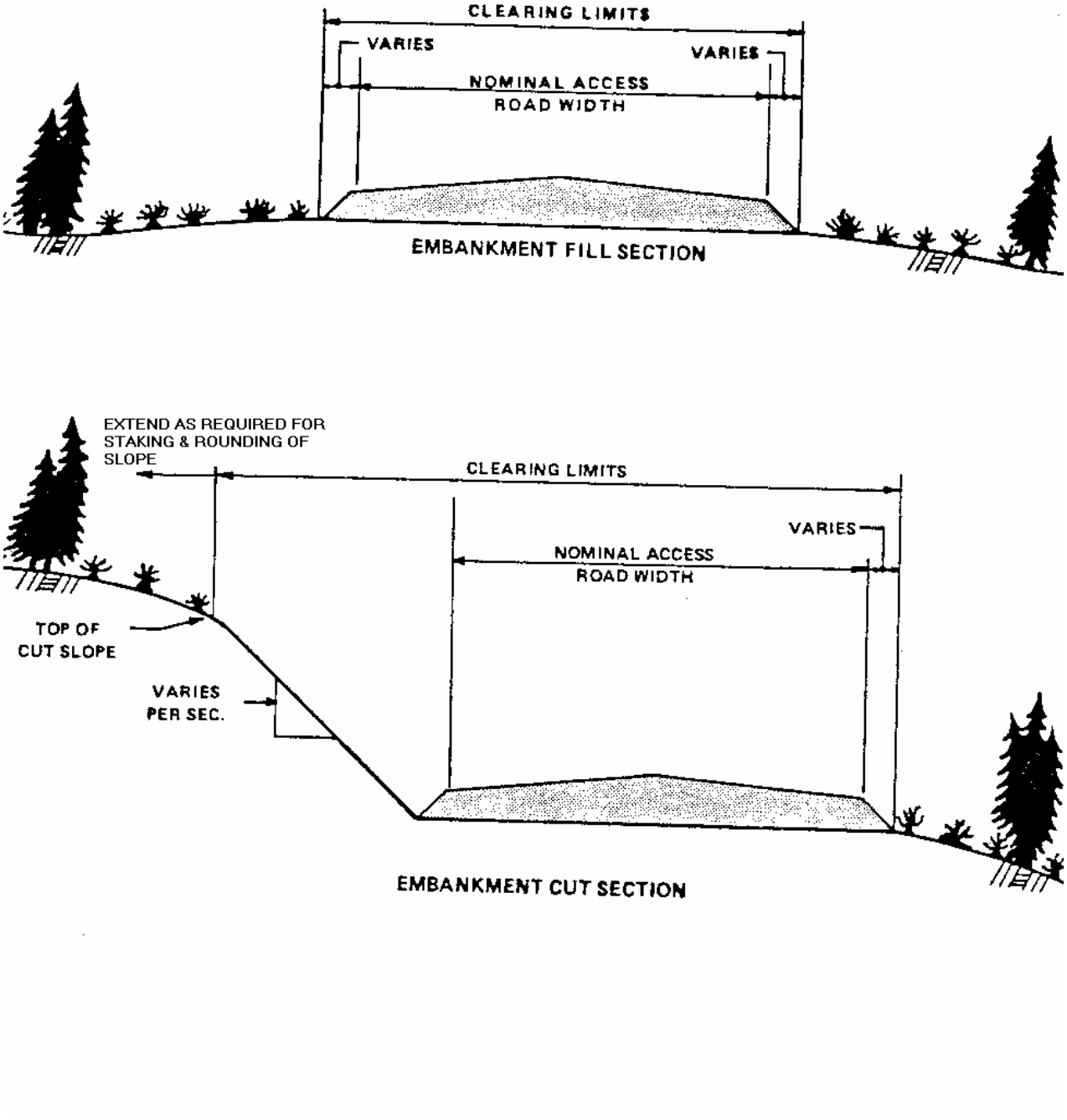


Figure 10-3 Typical Clearing Widths for Access Roads